

Pollution Prevention as a Means to Environmental Compliance

Lt Col Brian McCarty
HSC/XRE, Building 150
Brooks AFB, TX 78235
Tel: (210) 536-4466
E-mail: brian.mccarty@em.brooks.af.mil

Steve Coyle
HQ AFMC/CEVV
4225 Logistics Ave.
Suite 8, Building 266
WPAFB, OH 45433-5747
Tel: (937) 257-7414
E-mail: coyles@afmcee.wpafb.af.mil

Wayne Kachel, PhD, PE, DEE
MELE Associates, Building 150
Brooks AFB, TX 78235
Tel: (210) 536-1345
E-mail: wayne.kachel@em.brooks.af.mil

The Air Force, and in particular the Air Force Materiel Command (AFMC), has invested heavily in pollution prevention (P2) for the past several years. The objective of these investments was primarily to reduce the use of hazardous materials in accordance with Air Force goals. There was no regulatory requirement. During the same period, a concerted effort in the environmental compliance arena drastically reduced the number of permit noncompliances to a relatively low, static number. Many of these are difficult to resolve using conventional approaches. AFMC is now challenged with achieving complete environmental compliance in spite of rapidly declining budgets. AFMC recognizes that a new way of doing business is needed in order to achieve their objective: the overall reduction in costs and risks associated with environmental permits. The new business paradigm is *Compliance Through Pollution Prevention (CTP²)*.

Background

Both Secretary of the Air Force Widnall and former Chief-of-Staff General Fogleman have identified that the Air Force needs to rethink the methodology by which Air Force ESOH programs are managed. General Fogleman has stated: "Our future commitment to...ESOH programs will not be diminished. We must transcend traditional boundaries so we can ... support the Air Force's vitality in the 21st century."

On 3 August 1993, President Clinton signed Executive Order (E.O.) 12856: Federal Compliance with Right-to-Know and Pollution Prevention Requirements. The order ambitiously states that the federal government should establish itself as a leader in the P2 arena. The President encouraged all federal agencies to turn to P2 as the primary

means to achieve compliance with environmental laws and regulations, reduce environmental costs, and decrease future liability. His rationale is an obvious one; if you don't engage in regulated environmental activities then you can't be out of compliance.

His Order requires the development of strategies in four areas:

- Toxic Chemical Reduction Goals,
- Acquisition and Procurement Goals,
- Toxics Release Inventory / Pollution Prevention Act Reporting, and
- Emergency Planning and Community Right-to-Know Reporting Responsibilities.

The Environmental Protection Agency (EPA) subsequently convened a working group to develop a plan for implementing the E.O. The product, finalized on 3 September 1996, established the Code of Environmental Management Principles (CEMP) for federal agencies. The five identified principles are:

- Management Commitment,
- *Compliance Assurance and Pollution Prevention*,
- Enabling Systems,
- Performance and Accountability, and
- Measurement and Improvement.

DoD subsequently endorsed the CEMP at the Deputy Under Secretary Level. Within DoD, progress towards implementing the CEMP is varied. The Marine Corps (USMC) has implemented their Pollution Prevention Approach to Compliance Efforts (PACE) program. The PACE goal is to increase investments in P2 solutions to compliance issues to 30% of the USMC environmental management budget by FY 00.

The Air Force already has several elements of an extensive environmental management system (EMS) in place. Tone and direction are set through Air Force Directives and Instructions that are augmented by targeted programs such as the Environmental Compliance Assessment and Management Program (ECAMP) to assess compliance and Pollution Prevention Opportunity Assessments (OAs) to identify P2 opportunities. Each effort was developed and has evolved to address a particular need but they are not totally linked. As funding lines draw down, the need to operate more efficiently increases and CEMP presents an excellent opportunity to accomplish this by implementing a *CTP²* paradigm in a systematic manner.

CTP² is an environmental management strategy founded on the principle that P2 is the best means to achieve environmental compliance, reduce environmental costs, decrease liability, and meet DoD / Air Force environmental requirements. The ultimate vision for *CTP²* is to reduce environmental risk and eliminate environmental permits where it is cost-effective.

The Air Force has invested substantial resources in P2 with difficult to quantify results. In prior years, P2 investments were made mostly for the sake of reducing waste

generation and the associated pollution risk with little concern for other drivers such as environmental compliance. The new business paradigm established by General Babbitt mandates that sound business practices underlie all future investments, including those in P2. Accordingly, AFMC has decided to target future P2 investments at those having the potential for rapid payback through reduced compliance costs.

The Air Force recognizes that several impediments exist to implementing *CTP²*. Currently, the P2 and compliance programs exist in their own "stove-pipes" and have separate funding. P2 projects must compete for funding with end-of-pipe compliance projects. As the latter are typically "must fund" projects, P2 projects are much more difficult to justify.

AFMC has already begun to establish P2 as the best means to achieve compliance in the belief that properly targeted P2 efforts should result in less compliance requirements. Compliance funding requests are being evaluated to determine if a long-term P2 fix might be available. AFMC is increasing efforts in the DoD/EPA ENVVEST program. At some AFMC bases, stronger links are being forged between the compliance and P2 organizations through integrated product teams. AFMC bases have been asked to appoint *CTP²* project officers.

The Air Force's position and need for an integrated environmental management strategy is not unique. Many private companies have been faced with the same challenge. Some have yet to address the issue. Others, such as Intel Corp., have attacked the problem head-on setting and achieving zero emission goals for new manufacturing facilities. Expertise in achieving compliance through pollution prevention exists for AFMC to draw upon.

Opportunity

The Air Force now has an opportunity, grown out of necessity, to develop a new approach to use tools such as P2 opportunity assessments to achieve compliance and ultimately significantly reduce compliance burden. It is anticipated that to a great extent, this can be accomplished by linking existing Air Force environmental programs and resources through an integrated framework. When fully functional, this unique approach will define the path to reduced compliance burden within the Air Force.

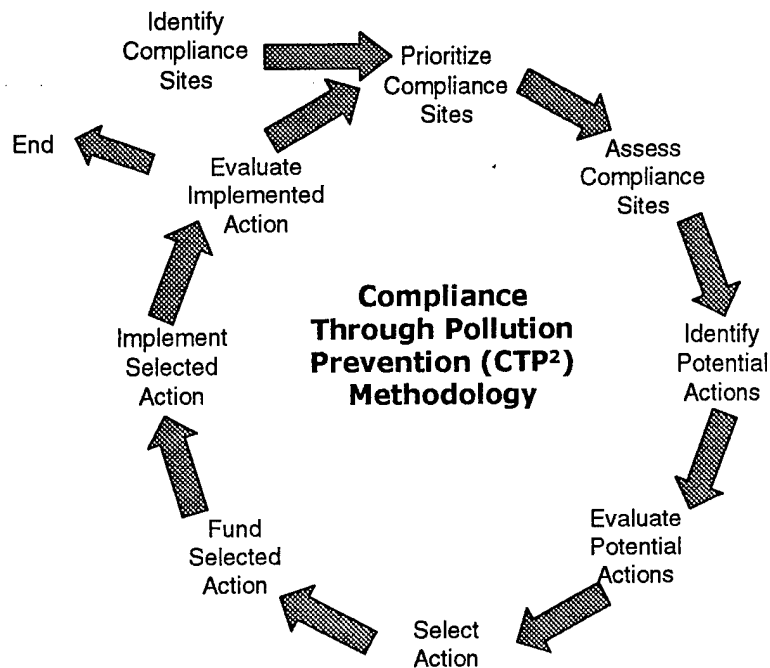
Approach

AFMC has embarked upon an aggressive multi-phased program to develop the new *CTP²* approach. The first phase consists of three activities. The first activity is to determine to what extent AFMC has programs in place and functioning that conform to the 5 CEMP principles. In the course of this gap analysis, AFMC will be looking for opportunities to ingrain a *CTP²* philosophy into the way they do business.

Concurrent with the Gap Analysis, AFMC will identify pollution prevention best management practices not currently in use by AFMC that could be migrated to the

Command to support *CTP²*. The focus will be on actual management practices rather than field level activities such as replacing one solvent for another. AFMC is most interested in those environmental management systems that could be used to reduce compliance burden and/or costs.

The Gap Analysis and the P2 best management practices will be merged to form an action plan detailing the most direct path that AFMC should take to achieve environmental permit elimination. Until the Action Plan is complete, it is not possible to fully define the next steps. However, for planning purposes we have conceptualized the *CTP²* methodology presented in the following figure.



The *CTP²* methodology is fashioned after a similar methodology developed for the EPA by their Science Advisory Board and consists of 9 steps.

1. Identify Compliance Sites: AFMC has developed a basis for defining compliance sites to the lowest possible unit for each permit. As a result, they have defined approximately 18,000 compliance sites in the Command. These sites establish the starting point for the methodology.

2. Prioritize Compliance Sites: It simply isn't possible to address 18,000 Sites at one time. **Criteria must be established** and a procedure developed to determine which Sites should be addressed first. Each Site has its own characteristics in terms of ecologic and human health risk, mission criticality, likelihood of noncompliances, etc. that need to be established and evaluated to determine which Compliance Sites should be addressed first.

3. *Assess Compliance Sites:* Then each Site must be examined to first determine if it is properly characterized and then what unique characteristics it possesses making it a candidate for various pollution prevention actions.

4. *Identify Potential Actions:* The Site characteristics define a suite of pollution prevention actions that may be applicable for that site. The criteria and process to accomplish this flow directly from the Step 3 and become a mechanical process. The potential actions may be technological as well as policy.

5. *Evaluate Potential Actions:* The suite of identified potential actions is then culled to eliminate those that are clearly unacceptable for this particular situation. Also, corrective actions may be identified that are a combination of two or more of the identified potential actions. The process results in a short list of potential actions for consideration by the decisionmaker.

6. *Select Action:* The decisionmaker(s) selects the action to be funded. The selection process can be simply based upon values or founded on one of the more sophisticated decision science processes.

7. *Fund Selected Action:* Once the "best" option has been selected, the funding source can be selected.

8. *Implement Selected Action:* The "best" option has been selected and funds have been appropriated. It is now time to implement the action.

9. *Evaluate Implemented Action:* Once the action has been implemented, it will be evaluated to determine to what extent it is effective. If the permit requirements for the compliance site have been satisfied and the permit can be withdrawn, then that compliance site can be eliminated from the process where it makes sense to do so. If it can't be eliminated, then the site is returned to the pool of compliance sites for future prioritization.

As envisioned, the process will be very reproducible and lend itself to field implementation. Because it must feed into higher level decision strategies it will be built around an interactive computer support system to assure that the information available to the decision maker is as current as possible.

Currently, it is planned that the CTP² Methodology will be fully developed and ready for field testing by the end of FY 98. Subsequent, field tests will proof the concept to assure that it is fully implementable.